

# Executive Summary: Customer Churn Analysis

This report presents a detailed exploration of customer churn based on demographic, contractual, and service usage attributes. The goal is to uncover patterns that contribute to customer attrition and recommend actionable strategies for improving retention.

## □ Data Preparation:

- Blank values in `TotalCharges` where `tenure` was 0 were replaced with 0 to maintain data consistency.
  - Binary columns such as `SeniorCitizen` were transformed from 0/1 to No/Yes for improved readability and interpretation.
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## 🔍 Key Findings:

### 1. Overall Churn Rate:

- Out of the total customers analyzed, **26.54%** have churned, while **73.46%** have stayed.
- This significant churn percentage highlights the need for targeted retention efforts.

### 2. Customer Tenure and Churn:

- Customers with **tenure less than 6 months** showed the **highest churn rate**, especially those with **1–2 months of service**.
- Conversely, customers who have been with the company for **over 24 months** are **much more likely to stay**, showing loyalty over time.

### 3. Impact of Contract Type:

- **Month-to-month contracts** account for the **majority of churns**.
  - Approximately **42% of month-to-month customers** churned.
- In contrast:
  - **One-year contract customers** had a churn rate of around **11%**.
  - **Two-year contract customers** had the **lowest churn rate**, under **3%**.
- This clearly indicates that **long-term contracts increase customer retention**.

### 4. Senior Citizen Status:

- Among senior citizens, the churn rate is **significantly higher**:
  - **42% of senior citizens** have churned, compared to **24% among non-senior citizens**.
- This suggests that **older customers may face challenges with service usability or affordability**.

## 5. Service Usage Patterns:

- Customers who retained services typically had the following:
  - **Phone Service** enabled
  - **DSL Internet Service**
  - **Online Security** active
- Features like **Online Backup**, **Tech Support**, and **Streaming TV** showed **higher churn rates when not subscribed to**.
  - For instance, customers **without Tech Support** had a **churn rate over 35%**, compared to **less than 15%** for those who had it.

## 6. Payment Method:

- Customers using **Electronic Check** as a payment method had the **highest churn rate** of around **45%**.
  - In comparison:
    - **Mailed Checks** had a churn rate of **19%**
    - **Credit Card (automatic)** and **Bank Transfer (automatic)** both had churn rates **below 15%**
  - This suggests that customers using **automatic payments** are more stable, likely due to convenience and financial confidence.
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## Visual Insights:

- **Pie charts** were used to depict the proportion of churners vs. non-churners.
  - **Bar charts** effectively compared churn rates across:
    - Contract types
    - Internet services
    - Payment methods
    - Tech support and security services
  - These visuals brought clarity to complex relationships and helped identify **high-risk customer segments**.
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## Recommendations:

1. **Encourage longer-term contracts** with loyalty perks to reduce churn.
2. **Improve onboarding and support** for new users, especially in their first 3–6 months.
3. **Offer targeted support and tailored packages** for senior citizens.
4. **Promote value-added services** (e.g., Tech Support, Online Security) which are associated with lower churn.
5. **Incentivize auto-payment methods** to improve financial commitment and retention.

